UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/758,817	01/11/2001	Robert E. Balfour	P/ 3588 - 2	9253

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EXAMINER
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ART UNIT	PAPER NUMBER
2672	7

DATE MAILED: 04/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 January 2004*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

1.   This office action is responsive to the following communications: Application,

filed 01/11/2001; IDS, paper # 2, filed 04/12/2001; IDS, paper # 4, filed 05/16/2001.

2.   Claims 1-39 are pending in this application. Claims 1 and 32 are independent

claims. No claims have yet been amended.

3.   The present title of the application is "Method and System for a Four-Dimensional

Temporal Visualization Data Browser" (as originally filed).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Barrus, U.S. Patent Number 6,058,397, "3D Virtual Environment Creation Management

and Delivery System", class 707/104.1, 05/02/2000, filed 04/08/1997, in view of Mitchell

et al, U.S. Patent Number 6,349,301, "Virtual Environment Bystander Updating in Client

Server Architecture", class 707/101, filed 02/24/1998.

A system to interactively access and analyze temporal data relationships

that change over time, the system comprising: one or more 4D portal storage

mediums containing 4D portal information; (Barrus discloses the creation of a 3D

environment which is created and modified as records in a database, i.e. storage

medium, col. 2, lines 45-60, and further discloses the 3D database includes a parts list,

i.e. object primitives, and a creation and modification date, which constitutes time, col.

16, lines 61-67, and see figure 16) and the one or more 4D browser programs adapted

to access the one or more 4D portal storage mediums and convert the 4D portal

information contained therein into one or more 4D objects rendered in a 3D scene,

(Barrus discloses the exchange of information between a browser and server and the

browser requests the 3D information and the data is extracted and converted for the

browser, col. 19, lines 13-31) wherein the 4D browser programs are adapted to

manipulate the 4D objects in three spatial dimensions and a fourth time dimension

according to the 4D portal information so as to enable the temporal and spatial

manifestation of the 4D objects in the 3D scene; (Barrus discloses transformations, i.e.

manipulations, of the object in a locale coordinate system, spatial dimension, and

further disclose the version list include a date with respect to each object, col. 16, lines

21-67) and one or more 4D portal windows adapted to receive and display the 4D

objects in the 3D scene rendered by a 4D browser program.

However, it is noted that Barrus fails to disclose a portal. Mitchell discloses n

local databases, i.e. storage mediums, which each contain a portion of a virtual world

environment which incorporate three dimensional objects maintained with the database

with at least graphics, video, text and sound, col. 3, lines 15-45. Mitchell discloses a

display, col. 5, line 60, and further discloses a portal as a doorway that links rooms and

enables object movement between rooms, col. 65, lines 22-26. It would have been

obvious to one of ordinary skill in the art at the time of the invention to include in the

creation and modifications of the virtual environment created by Barrus, the portal

information disclosed in Mitchell to allow for the user to manipulate objects through

movement and portals are used in virtual worlds to link movement locations and the

updating of the client database with all the information to portray objects represented in

the new location.

With respect to dependent claim 2, further comprising: one or more

information databases from which the 4D portal information is derived. (Barrus

disclosed the creation of a 3D environment, which is created and modified as records

in a database, col. 2, lines 45-60 and further discloses a version list including a date

with respect to each object, col. 16, lines 21-67, therefore making the database a 4D

database)

With respect to dependent claim 3, wherein the 4D portal information includes

4D object definitions, 4D object attributes, 4D object actions and 4D object

time-stamped audit trail data. (Barrus discloses the database includes a parts list, i.e.

object primitives, and a creation and modification date, which constitutes time audit

trail, col. 16, lines 61-67, and figure 16)

With respect to dependent claim 4, wherein the 4D portal information is

augmented with spatial manifestation definitions, guideway definitions and 3D

visual models for each 4D object definition. (Barrus discloses in figure 3)

With respect to dependent claim 5, wherein the 4D browser program creates an interactive 3D computer-generated scene in one or more 4D portal windows that is manipulated by one or more users of the system. (Barrus discloses version control for creators and 3D authors and that a user may indicate which version of the composition would be extracted, col. 15, liens 11-30)

With respect to dependent claim 6, further comprising: a communications system connected between the one or more 4D portal storage mediums and one or more 4D browser programs, the communications system being adapted to process 4D portal information into 4D object states and transmit the 4D portal information and the 4D object states to one or more 4D browser programs. (Barrus discloses the exchange of information between a browser and server and further discloses the browser is requesting the 3D information and the file code which contain the 3D information. However, it is noted that Barrus fails to disclose portal storage. Mitchell discloses a portal as a doorway that links rooms and enables object movement between rooms, col. 65, lines 22-26. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the 4D object information for transmission the portal information because both Barrus and Mitchell incorporate objects in the creation of the virtual world environment)

With respect to dependent claims 7 and 8, wherein the 4D portal information represents a physical object, abstract dataset represented by geometric shapes. However, is noted that Barrus fails to disclose portal information. Mitchell discloses a portal as a doorway that links rooms and enables object movement between rooms,

col. 65, lines 22-26, and discloses each object as an abstraction consisting of data and

operations and further discloses each may be further specialized, i.e. shapes, col. 4,

lines 93-67.

With respect to dependent claim 9, wherein the 4D portal information is

organized in a spatial hierarchy. However, it is noted that Barrus fails to disclose portal

information as a spatial hierarchy. Barrus discloses the list of compositions with all the

locales in the database are shown in the highest level of hierarchy, col. 14, lines 48-63.

It would have been obvious to one of ordinary skill in the art at the time of the invention

to include hierarchal structure for the portal information, i.e. database, to reduce the

amount of composited data in the portal database.

With respect to dependent claim 10, wherein the 4D object attributes

correspond to one or more data fields of the information database from which

the 4D portal information is derived. (Barrus discloses a table that shows the brief

description of the locale, with the name, ID number, height information and number

representing comments, col. 14, lines 25-40. It would have been obvious to include

data fields to relate to the user the portion of the object used for the object creation and

modification)

With respect to dependent claim 11, wherein the 4D object attributes are

calculated by applying a function to one or more data fields of the information

database. (Barrus discloses using the height information to represent ground locales ,

col. 14, lines 30-40, and to define the 3-D volume by adding a height to each polygon)

With respect to dependent claim 12, wherein the 4D object actions represent

events in time which effect one or more 4D object attributes. (Barrus discloses in

figures 1A and 1B)

With respect to dependent claim 13, wherein the 4D object attributes and 4D

object actions are associated with one or more spatial manifestation definitions.

(Barrus discloses a virtual reality scene based on an origin and dividing up the virtual

reality scene into parts, col. 7, lines 1-50)

With respect to dependent claim 14, wherein the spatial manifestation

definitions include insertion/removal of a 4D object, color, color ramp, scale,

orientation, translation, articulation, texture patterns, lighting effects, translucency, or

shape. (Barrus discloses a virtual environment in which the directory includes a list of

colors, texture and other attributes contained in the file, col. 10, lines 35-67)

With respect to dependent claim 15, wherein the spatial manifestation definitions

further include 4D temporal fade in/out and guideway translation/orientation definitions

utilized by the 4D browser program to manipulate one or more 4D objects in the 3D

scene. (Barrus discloses defining a set of transformations, representing displacement,

i.e. translation, reorientation, and scaling, i.e. fade in/out, col. 15, lines 62-65)

With respect to dependent claim 16, wherein the spatial manifestation definitions

are static. (Barrus discloses in figure 13)

With respect to dependent claim 17, wherein the spatial manifestation definitions

are progressive. (Barrus discloses figure 1A)

With respect to dependent claim 18, wherein the 4D browser program includes

access privileges to the 4D storage mediums, and wherein the communications

system is further adapted to validate the 4D browser program access privileges

to the 4D storage mediums in response to a request for access by one or more of

the 4D browser programs. (Barrus discloses indexing that provides access to various

parts of the environment by different persons, col. 2, lines 45-60)

With respect to dependent claim 19, wherein the access privileges to the 4D

storage mediums include open, query, select, update and close, and wherein the

communication system responds to the request for access by retrieving the

corresponding 4D portal information from the 4D portal storage medium. (Barrus

discloses versions are marked with a version number and a revision control system or

a source code control system, col. 14, line 64 – col. 15, line 30)

With respect to dependent claim 20, wherein the communication system

processes the 4D portal information into 4D object states and webpage content

and transmits the 4D portal information, the 4D object states and the webpage

content to the 4D browser program according to the request for access. (Barrus

discloses in figure 2, and col. 2, lines 45-60)

With respect to dependent claim 21, wherein the 4D browser program is further

adapted to generate 4D object states from the 4D portal information. (Barrus

discloses in figure 14)

With respect to dependent claim 22, wherein the 4D portal information is

temporally and spatially binned so as to represent time frames of the 4D object states

at selectable temporal resolutions of the 4D objects in selectable levels in a spatial

hierarchy. (Barrus discloses in figures 6A-6C)

With respect to dependent claim 23, wherein the 4D browser program is connected between the one or more 4D portal windows by a shared electronic network system. (Barrus discloses in col. 3, lines 32-52)

With respect to dependent claim 24, wherein the communications system is connected between the one or more 4D portal storage mediums and the one or more 4D browser programs by a shared electronic network system. (Barrus discloses in col. 3, lines 35-41)

With respect to dependent claim 25, wherein the guideway definitions and the 3D visual models of each 4D object definition are spatially referenced to and visually rendered in the 4D portal windows. (Barrus discloses in figures 3 and 4)

With respect to dependent claim 26, wherein the 4D browser program is further adapted to provide an interactive time control which specifies a starting time value and an ending time value for the fourth time dimension by moving the time control forward or backward in selectable time increments, process the 4D portal information corresponding to the time increment between the starting time value and the ending time value so as to maintain a temporal context of the one or more 4D objects in the 3D scene, and utilize the temporal context to determine the one or more spatial manifestations to be applied to the one or more 4D objects in the 3D scene between the starting time value and the ending time value. (Barrus discloses version control to allow an author to revert to an environment and also discloses extracting for viewing the latest version of each composition and part and changing a sequence of parts reviewed by extracting all versions, col. 15, lines 11-30)

With respect to dependent claim 27, wherein the 4D browser program is further adapted to modify the 4D portal information and save the modifications on the one or more 4D portal storage mediums. (Barrus discloses in figure 3)

With respect to dependent claim 28, further comprising: a local storage medium, and wherein the 4D browser program is further adapted to modify the 4D portal information and save the modifications on the local storage medium. (Barrus discloses in col. 3, lines 46-52)

With respect to dependent claim 29, wherein the time frames include one or more time masks which specify repeating time periods. (Barrus discloses minor and major version numbers, i.e. one or more time frames, which can be extracted from the database for the object composition list and further discloses the number of versions for an object grouped, i.e. specified, by the data of the modification or creation, col. 15, lines 21-30, see also figure 13)

With respect to dependent claim 30, wherein the 4D browser program is further adapted to enable the selection of a temporal and spatial manifestation of a 4D object in the 3D scene with a pointing device. However, it is noted that Barrus fails to disclose a pointing device. Mitchell discloses a pointing device, col. 5, lines 59-60. It would have been obvious to one of ordinary skill in the art at the time of the invention of Barrus to include a pointing device because computers are used to render virtual worlds and are known to receive input from a user through a mouse or other pointing device.

With respect to dependent claim 31, wherein the 4D browser program is further

adapted to save the 3D scene each time the 3D scene is rendered in the 4D

portal window as 4D objects are manipulated temporally or spatially. (Barrus discloses

storing in the file the object and the changes made to the object, col. 11, lines 1-47)

As per independent claim 32, A method for generating a temporally and spatially

manipulatable 4D portal from one or more information databases, comprising:

identifying a representative set of 4D object types from the one or more information

databases; (Barrus discloses information representing a virtual environment in a

database, abstract) defining spatial manifestations for each 4D object type; (Barrus

discloses in figure 3) organizing the 4D object types and spatial manifestations into a

set of 4D object definitions; (Barrus discloses in figure 13) creating a 3D visual model

for each 4D object type; (Barrus discloses in figures 15 and 16) and creating one or

more 4D objects in a 3D scene based on the 4D object definitions. (Barrus discloses in

figures 3 and 4)

However, it is noted that Barrus fails to disclose a portal. Mitchell discloses n

local databases, i.e. storage mediums, which each contain a portion of a virtual world

environment which incorporate three dimensional objects maintained with the database

with at least graphics, video, text and sound, col. 3, lines 15-45. Mitchell discloses a

display, col. 5, line 60, and further discloses a portal as a doorway that links rooms and

enables object movement between rooms, col. 65, lines 22-26. It would have been

obvious to one of ordinary skill in the art at the time of the invention to include in the

creation and modifications of the virtual environment created by Barrus, the portal

information disclosed in Mitchell to allow for the user to manipulate objects through

movement and portals are used in virtual worlds to link movement locations and the

updating of the client database with all the information to portray objects represented in

the new location.

With respect to dependent claim 33, further comprising: organizing the 4D

object types into a 4D object spatial hierarchy.   (Barrus discloses the list of

compositions with all the locales in the database are shown in the highest level of

hierarchy, col. 14, lines 48-63)

With respect to dependent claim 34, further comprising: identifying 4D object

attributes from the one or more information databases; and identifying 4D object

actions from the one or more information databases, wherein the spatial manifestations

are defined for the 4D object attributes and the 4D object actions, and wherein the set

of 4D object definitions are organized according to the 4D object types, the 4D object

spatial hierarchy, the 4D object attributes, the 4D object actions and the spatial

manifestations. (Barrus discloses the list of compositions with all the locales in the

database are shown in the highest level of hierarchy, col. 14, lines 48-63)

With respect to dependent claim 35, further comprising: creating guideway

definitions based on the spatial manifestations. (Barrus discloses translation

information, dislocation, reorientation and other spatial transformations, col. 13, lines

55-65)

With respect to dependent claim 36, further comprising: generating a 4D

object audit trail from the one or more information databases. (Barrus discloses the database includes a parts list, i.e. object primitives, and a creation and modification date, which constitutes time audit trail, col. 16, lines 61-67, and figure 16)

With respect to dependent claim 37, further comprising: organizing the 4D object definitions, the 4D object audit trail, the 3D visual models and the guideway definitions into a 4D portal database. (Barrus discloses in figure 2)

With respect to dependent claim 38, further comprising: updating the one or more information databases from which the 4D portal information was derived; and updating the 4D portal database in response to updates to the one or more information databases from which the 4D portal information was derived. (Barrus discloses maintaining versions for each object creation and modification, col. 15, lines 21-30)

With respect to dependent claim 39, wherein the 4D portal database is generated by a database management system. (Barrus discloses in figure 26, a content manger)

Response to Arguments

6.   Applicant's arguments filed 01/09/2004 have been fully considered but they are not persuasive.

7.   In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., complex dynamic relationships between the portal information and temporal data relationships from information databanks that change over time) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification,

limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant argues that Barrus fails to teach or suggest a 4D browser program and converting the portal information into one or more 4D object in a 3D scene. Barrus discloses a 3D model as recited in the Applicant arguments and further discloses a time stamp, which therefore does include time information.

Applicant argues that the portal disclosed in Mitchell does allow for the manipulation of objects and the doorways do not move or manipulate anything. Mitchell discloses the portal represents the doorway that slows and links the movement of objects to rooms, which define regions of perception between objects disposed in that region. It is the Examiner's interpretation that the portal disclosed in Mitchell allows for movement and interaction between rooms or regions for perception between other objects in that region.

Applicant argues that the term portal comprises a view into four dimensional information databases to build 4D portals, however Applicant did not claim viewing four-dimensional information in 4D portals.

Applicant argues that Mitchell and Barrus fail to disclose one or more browser programs to manipulate 4D objects to enable temporal and spatial manifestation of the 4D objects in a 3D scene. It is well known that in WWW browsing system are know and used to connect to a network and browsers support browsing at client computers. Applicant argues that Barrus fails to suggest organizing 4D object types sand spatial manifestations into a set of 4D object definitions. Barrus discloses objects as an

abstraction of the data and the operations associated with the data, col. 4, lines 62-67,

and further discloses using the information a 3D scene and a time stamp for version

control, which Examiner interprets as organization and the 3D model as having object

definitions.

Conclusion

8.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Motilewa A. Good-Johnson whose telephone number is

(703) 305-3939. The examiner can normally be reached on Monday - Friday 8:30 AM -

5:00 PM.

   If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mike Razavi can be reached on (703) 305-4713. The fax phone numbers

for the organization where this application or proceeding is assigned are (703) 872-9314

for regular communications and (703) 872-9314 for After Final communications.

   Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703) 306-

0377.

                                        Motilewa A. Good-Johnson
                                        Examiner
                                        Art Unit 2672

mgj
April 2, 2004

                                        MICHAEL RAZAVI
                                        PRIMARY PATENT EXAMINER